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PROPERTIES AND USE OF NEW ALKALOID PACHYCARPINE

The medical industry has acquired experience in the production of a new drug, pachycarpine. This original drug is of great effectiveness in endarteritis obliterans, progressive muscular atrophy, inflammatory changes of the solar plexus, cervical-thoracic ganglionites, and other diseases.

Pachycarpine was isolated originally by Academician A. P. Orekhov and his collaborators at the All-Union Scientific Research Chemicopharmaceutical Institute imeni S. Ordzhonikidze. He proposed its use as a therapeutic agent on the basis of investigations carried out in the pharmacological department of the above-named institute.

The pharmacological investigation of pachycarpine showed that it has interesting properties. Introduction of this alkaloid into the organism brings about a sharp reduction of the excitability of ganglia of the vegetative division of the nervous system. Conduction of nerve impulses through the ganglia is impeded and temporarily interrupted entirely. In the central nervous system, the processes of protective inhibition are reinforced. The important characteristics of pachycarpine which have been mentioned above are absent in therapeutic agents known and used hitherto. There are reasons to believe that the new drug can be used in diseases which are accompanied by heightened excitability of vegetative ganglia and by the passage through these ganglia of supernormally strong pathologic nervous impulses.

Investigation of the therapeutic properties of pachycarpine was carried out through close collaboration of experimental scientists and clinical workers. At the Nervo-Organic Clinic of the Institute of Physiology imeni Pavlov, Academy of Sciences USSR, Prof N. E. Kryshova originally investigated the action of pachycarpine in cases of endoarteritis obliterans and muscular dystrophies. Subsequently, further investigation of the action of pachycarpine in endoarteritis was carried out also at the Hospital Therapeutic Clinic, First Moscow Order of

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Lenin Medical Institute. At the Clinic of Nervous Diseases of this institute, the action of pachycarpine in the therapy of diseases accompanied by afflictions of sympathetic ganglia was also investigated. Treatment with pachycarpine of muscular dystrophies of children was carried out at the Clinic of Nervous Diseases, Institute of Pediatrics, Ministry of Public Health RSFSR.

Clinical investigations carried out for over 2 years demonstrated that pachycarpine is a highly effective agent for the treatment of the diseases mentioned above. In endarterites, within a few days there occurs a warming of extremities, an increased pink coloration of the skin, disappearance of the marble tint of the skin, cessation of pain, and an increase in the strength of arterial pulsation. Improvement of ability to walk is also observed (patients are able to walk without assistance for great distances). Capillaroscopic investigation indicates improvement of the blood circulation. The general condition, sleep, and appetite are also improved. For the treatment of endarterites, pachycarpine is administered twice daily in doses of 0.1 g. The course of treatment is continued for 3 to 6 weeks. In the majority of cases observed up to now, the beneficial effect of a single course of treatment was sustained up to a year or longer. Aggravation as a rule occurred only in cases when there were other diseases accompanying the condition under treatment or severe nervous shock. When the course of treatment was repeated, good results were again obtained in such cases.

In myopathia, considerable improvement of the condition of patients was also observed. The strength and volume of motions increased, tendon reflexes reappeared, and there was improvement of the physiological strength of muscles and of the blood circulation. In treating myopathia, the drug is administered internally in doses of 0.1 g twice daily, for 40 to 50 days. Children younger than 6 years receive 0.05 g. The therapeutic effect is usually observable beginning with the 10th to 12th day. The course of treatment can be repeated two or three times, at intervals of one to 3 months.

In afflictions of sympathetic ganglia, pachycarpine is administered internally in doses of 0.05 to 0.1 g twice daily for 10 to 15 days. In 2 weeks, or even less, the course of treatment may be repeated.

Application of pachycarpine in cervical-thoracic ganglionites, afflictions of the stellate ganglion, and affections of the solar-plexus brought about rapid cessation of pain, disappearance of hyperpathia, and considerable improvement in the general condition of the patient.

One of the pharmacological characteristics of pachycarpine which is not directly connected with its effect on nerve ganglia is its ability to stimulate the muscles of the uterus. Clinical tests have shown that pachycarpine is of considerable value in obstetrics. The drug is administered intramuscularly in doses of from 3 to 5 ml of a 3% solution or internally in doses of 0.1 to 0.15 g. The stimulating effect is observed 15 to 30 minutes after the injection or the internal administration. Administration of the drug may be repeated after 3 to 4 hours.

No matter what the mode of application, pachycarpine is well tolerated by the patient and does not cause any complications. In obstetric applications, it is preferable to pituitrin because it does not cause any increase in blood pressure and, therefore, may be applied when confined women suffer from nephropathy or high blood pressure. The drug does not exert any harmful effect on the child or mother.

The Scientific Medical Council of the Ministry of Public Health USSR has recommended pachycarpine for wide application in medical practice.

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